

REMARKS

Claims 1-19 are pending in this application. Claims 12-14 are objected to; and claims 1-11 and 15-19 are rejected. Claims 1, 4, 5, 7, 11, 17 and 18 are amended hereby.

Responsive to the rejection of claim 17 under 35 U.S.C. § 112, second paragraph, Applicants respectfully traverse this rejection, and submit that claim 17 is in allowable form. Applicants respectfully submit that claim 17 definitely claims that the curved area of the application surface U subtended by the weakening device 24 has a radius R between approximately 300 mm to 500 mm which, because application surface U is supported in this curved area by support roll 40, is effectively the same radius as the support roll 40 in the embodiment shown in Fig. 1. Although reference character "R" in Fig. 1 shows both the radius of the application surface in this curved area and the radius of support roll 40, claim 17 is definite and is specifically claiming the radius of the curved area of the application surface U, without reference to the support roll. For all of the foregoing reasons, Applicants respectfully submit that claim 17 is definite and distinctly claims the subject matter which the Applicants regard as the invention, and that claim 17 is in allowable form.

Responsive to the rejection of claims 1, 2, 4-6, 15, 18 and 19 under 35 U.S.C. § 102(b) as being anticipated by Japanese Patent No. JP02000176344A (Kashiwada et al.), Applicants have amended claims 1, 4, 5, and 18, and submit that claims 1, 2, 4-6, 15, 18 and 19 are in condition for allowance.

Kashiwada et al. '344 disclose a curtain coater (Figs. 1-2) which includes a space formation member 21 which removes company air to the upstream of free-fall landing section 14 of coating liquid film 9 (paragraph 0014). Space formation member 21 includes blowdown slit 23a and attraction slit 24a (paragraph 0015). In Fig. 3, an air attraction element 24 is formed in

the downstream edge of a space formation member 21 and an air blast element 23 is formed at the upstream edge (paragraph 0018). (Emphasis added.) The included angle of blowdown slit 23a of air blast element 23 is turned to the opposite direction, and is sprayed in the conveyance direction of web 11 (paragraph 0018). (Emphasis added.)

In contrast, claim 1, as amended, recites in part: “a blowing device located prior to said applicator as viewed in the direction of travel, said blowing device producing an air flow in an opposite direction to the direction of travel, said blowing device including a blow nozzle at a downstream end of said blowing device . . .”. (Emphasis added.) Applicants submit that such an invention is neither taught, disclosed nor suggested by Kashiwada et al. ‘344 or any of the other cited references, alone or in combination, and has distinct advantages thereover.

Kashiwada et al. ‘344 disclose a curtain coater which includes a space formation member upstream of a free-fall landing section of a coating liquid film, where the space formation member includes a blowdown slit and an attraction slit, or a separate air blast element formed at the upstream edge the space formation member. However, Kashiwada et al. ‘344 fail to disclose or suggest a blowing device including a blow nozzle at a downstream end of the blowing device.

An advantage of the present invention is that the blow nozzle at a downstream end of the blowing device provides a more efficient and complete disruption of the boundary layer of air prior to coating.

In further contrast, claim 4 is amended in independent form and recites in part: “wherein said blowing device includes a blow box, said application surface includes a first lateral edge and a second lateral edge, said blow box supplied with air in both an area of said first lateral edge and an area of said second lateral edge . . .”. (Emphasis added.) Applicants submit that such an invention is neither taught, disclosed nor suggested by Kashiwada et al. ‘344 or any of the other

cited references, alone or in combination, and has distinct advantages thereover.

Kashiwada et al. '344 disclose a curtain coater which includes a space formation member upstream of a free-fall landing section of a coating liquid film, where the space formation member includes a blowdown slit and an attraction slit, or a separate air blast element formed at the upstream edge the space formation member. The Examiner appears to have misinterpreted the claim language to mean that the blow box is capable of supplying air to both areas of the lateral edges, whereas claim 4 recites in part: "said blow box supplied with air in both an area of said first lateral edge and an area of said second lateral edge.". Kashiwada et al. '344 fail to disclose or suggest that the blow box supplied with air in both an area of the first lateral edge and an area of the second lateral edge.

An advantage of the present invention is that based on this two-sided, and preferably symmetric air supply into the blow box, an essentially uniform air stream can be achieved across the working width of the application surface that moves in opposite direction to the boundary layer of air that is carried along by the application surface.

In further contrast, claim 5 is amended in independent form and recites in part: "said suction device includes a suction box, said application surface includes a first lateral edge and a second lateral edge, air is exhausted from said suction box in one of an area of said first lateral edge and an area of said second lateral edge". (Emphasis added.) Applicants submit that such an invention is neither taught, disclosed nor suggested by Kashiwada et al. '344 or any of the other cited references, alone or in combination, and has distinct advantages thereover.

Kashiwada et al. '344 disclose a curtain coater which includes a space formation member upstream of a free-fall landing section of a coating liquid film, where the space formation member includes a blowdown slit and an attraction slit, or a separate air blast element formed at the

upstream edge the space formation member. However, Kashiwada et al. '344 fail to disclose or suggest air exhausted from said suction box in one of an area of the first lateral edge and an area of the second lateral edge of the application surface.

This advancement of the present invention provides for a more efficient pre-weakening of the boundary layer of air and takes advantage of the fact that the suction device serves primarily for the pre-weakening of the boundary layer of air. Therefore, a structurally complicated and subsequently expensive two-sided suction removal is not necessary.

Claim 18 is amended to reflect the antecedent basis for the "blow nozzle" element provided by the amendment to claim 1 described above.

For all of the foregoing reasons, Applicants submit that claims 1, 4 and 5, and claims 2, 6, 15, 18 and 19 depending therefrom, are in condition for allowance, which is hereby respectfully requested.

Responsive to the rejection of claims 7 and 17 under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative under 35 U.S.C. § 103(a) as being obvious by, Japanese Patent No. JP02000176344A (Kashiwada et al.), Applicants have amended claims 7 and 17 in independent form, respectfully traverse this rejection and submit that claims 7 and 17 are in condition for allowance.

Kashiwada et al. '344 disclose a curtain coater (Figs. 1-2) which includes a space formation member 21 which removes company air to the upstream of free-fall landing section 14 of coating liquid film 9 (paragraph 0014). Space formation member 21 includes blowdown slit 23a and attraction slit 24a (paragraph 0015). In Fig. 3, an air attraction element 24 is formed in the downstream edge of a space formation member 21 and an air blast element 23 is formed at the upstream edge (paragraph 0018). (Emphasis added.) The included angle of blowdown slit 23a of

air blast means 23 is turned to the opposite direction, and is sprayed in the conveyance direction of web 11 (paragraph 0018). (Emphasis added.)

In contrast, claim 7 is amended in independent form and recites in part: “wherein said blowing device includes an end facing said applicator as viewed in the direction of travel, said end is located at a distance of between approximately 10 mm and 50 mm from a point of contact of the coating medium on the application surface . . .”. (Emphasis added.) Applicants submit that such an invention is neither taught, disclosed nor suggested by Kashiwada et al. ‘344 or any of the other cited references, alone or in combination, and has distinct advantages thereover.

To anticipate a claim, the reference must teach every element of the claim (MPEP 2131). As Kashiwada et al. ‘344 is completely silent regarding at least the claim 7 limitations discussed above, Kashiwada et al. ‘344 does not anticipate claim 7 of the present invention.

To establish a *prima facie* case of obviousness, the prior art reference must teach or suggest all the claim limitations (MPEP 2142). As Kashiwada et al. ‘344 is completely silent regarding at least the claim 7 limitations discussed above, the Examiner has failed to make a *prima facie* case of obviousness and Kashiwada et al. ‘344 does not make obvious claim 7 of the present invention.

Kashiwada et al. ‘344 disclose a curtain coater which includes a space formation member upstream of a free-fall landing section of a coating liquid film, where the space formation member includes a blowdown slit and an attraction slit, or a separate air blast element formed at the upstream edge the space formation member. At least the limitations of claim 7 discussed above are not obvious to one of ordinary skill in the art, nor are these limitations an obvious matter of design choice, since these limitations impact the aerodynamic performance of the present invention. For example, if the blow box is too close to the curtain coater it may disturb the

coating medium, yet if the blow box is too far from the curtain coater the boundary layer of air may re-establish itself thereby negating the advantages of the weakening device. Kashiwada et al. '344 fail to disclose or suggest the blowing device including an end facing the applicator as viewed in the direction of travel, where the end is located at a distance of between approximately 10 mm and 50 mm from a point of contact of the coating medium on the application surface.

In further contrast, claim 17 is amended in independent form and recites in part: "wherein said curved progression includes a curvature radius between approximately 300 mm and 500 mm ...". (Emphasis added.) Applicants submit that such an invention is neither taught, disclosed nor suggested by Kashiwada et al. '344 or any of the other cited references, alone or in combination, and has distinct advantages thereover.

To anticipate a claim, the reference must teach every element of the claim (MPEP 2131). As Kashiwada et al. '344 is completely silent regarding at least the claim 17 limitations discussed above, Kashiwada et al. '344 does not anticipate claim 17 of the present invention.

To establish a *prima facie* case of obviousness, the prior art reference must teach or suggest all the claim limitations (MPEP 2142). As Kashiwada et al. '344 is completely silent regarding at least the claim 17 limitations discussed above, the Examiner has failed to make a *prima facie* case of obviousness and Kashiwada et al. '344 does not make obvious claim 17 of the present invention.

Kashiwada et al. '344 disclose a curtain coater which includes a space formation member upstream of a free-fall landing section of a coating liquid film, where the space formation member includes a blowdown slit and an attraction slit, or a separate air blast element formed at the upstream edge the space formation member. At least the limitations of claim 17 discussed above are not obvious to one of ordinary skill in the art, nor are these limitations an obvious matter of

design choice, since these limitations impact the aerodynamic performance of the present invention. The degree to which the boundary layer of air is weakened and may re-establish itself can be dependent on the curvature radius of the curved progression. Kashiwada et al. '344 fail to disclose or suggest the curved progression including a curvature radius between approximately 300 mm and 500 mm.

The present invention further advances the applicator device for installation in lines for the production and/or conversion of wide, fast moving material webs, preferably paper or cardboard webs, especially with regard to weakening the influence of the boundary layer of air and thereby improving the coating performance of the applicator device without negatively impacting the moving web.

For all of the foregoing reasons, Applicants submit that claims 7 and 17 are in condition for allowance, which is hereby respectfully requested.

Responsive to the rejection of claim 3 under 35 U.S.C. § 103(a) as being obvious by Japanese Patent No. JP02000176344A (Kashiwada et al.) in view of U.S. Patent No. 6,309,463 (Hess et al.), Applicants respectfully submit that claim 1 is distinguished from the cited prior art including Kashiwada et al. '344 and Hess et al. '463 as discussed above. Therefore any dependent claims, including claim 3, is distinguished from the cited prior art including Kashiwada et al. '344 and Hess et al. '463. For all of the foregoing reasons, Applicants submit that claim 1, and claim 3 depending therefrom, are in condition for allowance, which is hereby respectfully requested.

Responsive to the rejection of claims 8-10 under 35 U.S.C. § 103(a) as being obvious by Japanese Patent No. JP02000176344A (Kashiwada et al.) in view of U.S. Patent No. 6,106,902 (Koskinen et al.), Applicants respectfully submit that claim 1 is distinguished from the cited prior

art including Kashiwada et al. '344 and Koskinen et al. '902 as discussed above. Therefore any dependent claims, including claims 8-10, are distinguished from the cited prior art including Kashiwada et al. '344 and Koskinen et al. '902. For all of the foregoing reasons, Applicants submit that claim 1, and claims 8-10 depending therefrom, are in condition for allowance, which is hereby respectfully requested.

Responsive to the rejection of claim 11 under 35 U.S.C. § 103(a) as being obvious by Japanese Patent No. JP02000176344A (Kashiwada et al.) in view of U.S. Patent Application No. US 2004/0074440 (Nissinen et al.), Applicants respectfully submit that claim 1 is distinguished from the cited prior art including Kashiwada et al. '344 and Nissinen et al. '440 as discussed above. Therefore any dependent claims, including claim 11, is distinguished from the cited prior art including Kashiwada et al. '344 and Nissinen et al. '440. For all of the foregoing reasons, Applicants submit that claim 1, and claim 11 depending therefrom, are in condition for allowance, which is hereby respectfully requested.

Responsive to the rejection of claim 16 under 35 U.S.C. § 103(a) as being obvious by Japanese Patent No. JP02000176344A (Kashiwada et al.) in view of U.S. Patent No. 6,322,627 (Kusterman), Applicants respectfully submit that claim 1 is distinguished from the cited prior art including Kashiwada et al. '344 and Kusterman '627 as discussed above. Therefore any dependent claims, including claim 16, is distinguished from the cited prior art including Kashiwada et al. '344 and Kusterman '627. For all of the foregoing reasons, Applicants submit that claim 1, and claim 16 depending therefrom, are in condition for allowance, which is hereby respectfully requested.

At page 7 of the Office Action claims 12-14 are indicated allowable, if rewritten in independent form including all of the limitations of the base claim and any intervening claims, for

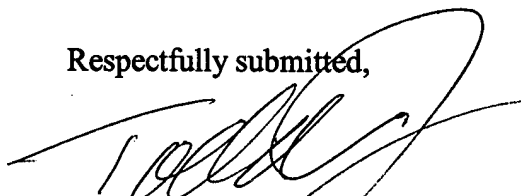
which courtesy the Examiner is thanked. Applicants have amended claim 12 to include the limitations of original claim 1. Claims 13 and 14 depend from claim 12. For all of the foregoing reasons, Applicants submit that claims 12-14 are in condition for allowance, which is hereby respectfully requested.

For the foregoing reasons, Applicants submit that the pending claims are definite and do particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Moreover, Applicants submit that no combination of the cited references teaches, discloses or suggests the subject matter of the amended claims. The pending claims are therefore in condition for allowance, and Applicants respectfully request withdrawal of all rejections and allowance of the claims.

In the event Applicants have overlooked the need for an extension of time, an additional extension of time, payment of fee, or additional payment of fee, Applicants hereby conditionally petition therefor and authorizes that any charges be made to Deposit Account No. 20-0095, TAYLOR & AUST, P.C.

Should any question concerning any of the foregoing arise, the Examiner is invited to telephone the undersigned at (260) 897-3400.

Respectfully submitted,



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Date